

# PolyStrata Greenhouse GasRadiometer for Small Satellite Applications, Phase II

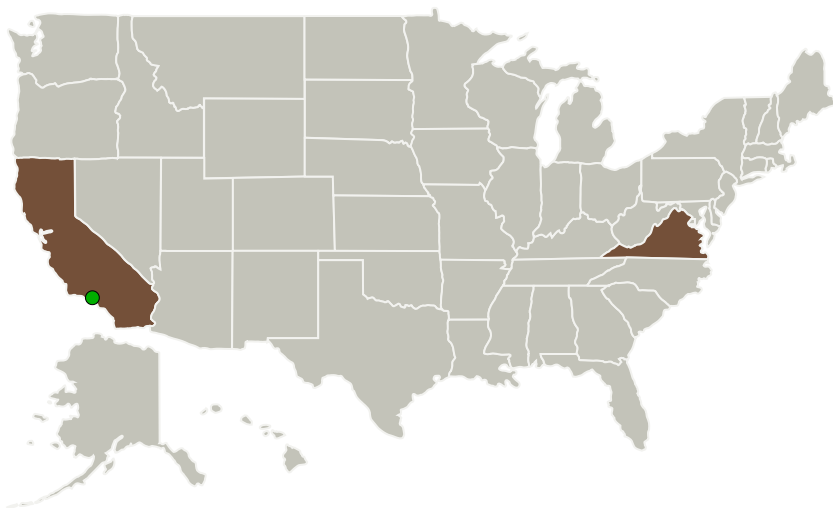
Completed Technology Project (2016 - 2019)




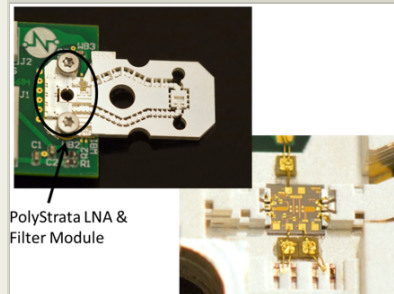
## Project Introduction

Traditional millimeter wave designs use split block or waveguide components and large planar filter banks. This implementation is large in mass and size which are at a premium on CubeSats. Nuvotronics proposes to reduce size and weight of these systems by leveraging low-loss PolyStrata-integrated component and interconnects. The PolyStrata process enables highly accurate, repeatable, compact, low loss filters which can stack to further reduce footprint. With savings in weight and size Nuvotronics will increase the total functionality by increasing the number of frequency bands served by a single CubeSat. A recent advancement in switches will be implemented eliminating the need for a motor to control the reflector, creating further reductions in power and weight. A novel interconnect structure will be showcased that can be implemented on any MMICs to provide a manufacturable, low loss, impedance matched method of launching onto MMICs in bands up to 300 GHz.

## Primary U.S. Work Locations and Key Partners



Organizations Performing Work	Role	Type	Location
Nuvotronics, Inc	Lead Organization	Industry	Radford, Virginia
 Jet Propulsion Laboratory(JPL)	Supporting Organization	NASA Center	Pasadena, California



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## Primary U.S. Work Locations

California

Virginia

## Project Transitions



**June 2016:** Project Start

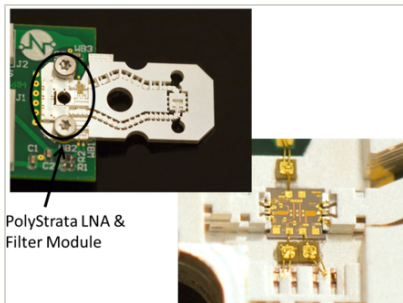


**February 2019:** Closed out

### Closeout Documentation:

- Final Summary Chart(<https://techport.nasa.gov/file/139766>)

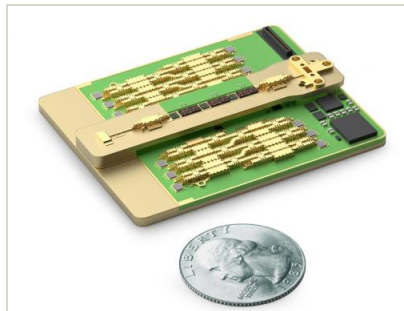
## Images



PolyStrata LNA &  
Filter Module

### Briefing Chart Image

PolyStrata Greenhouse  
GasRadiometer for Small Satellite  
Applications, Phase II  
(<https://techport.nasa.gov/image/132329>)



### Final Summary Chart Image

PolyStrata Greenhouse  
GasRadiometer for Small Satellite  
Applications, Phase II  
(<https://techport.nasa.gov/image/126581>)

## Organizational Responsibility

### Responsible Mission Directorate:

Space Technology Mission  
Directorate (STMD)

### Lead Organization:

Nuvotronics, Inc

### Responsible Program:

Small Business Innovation  
Research/Small Business Tech  
Transfer

## Project Management

### Program Director:

Jason L Kessler

### Program Manager:

Carlos Torrez

### Principal Investigator:

Scott A Meller

### Co-Investigator:

Jennifer Arroyo

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## Technology Maturity (TRL)

Start: **2**  
Current: **4**  
Estimated End: **4**



## Technology Areas

### Primary:

- TX08 Sensors and Instruments
  - └ TX08.1 Remote Sensing Instruments/Sensors
    - └ TX08.1.4 Microwave, Millimeter-, and Submillimeter-Waves

## Target Destinations

The Moon, Mars, Outside the Solar System, The Sun, Earth, Others Inside the Solar System